

PYROLYSIS OF MIXED PLASTIC WASTE (DKR350)

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Pyrolysis is a promising chemical recycling alternative to convert plastic waste into oil/wax products, which could be further processed in a steam or naphtha cracker or a refinery to produce chemicals or fuels. We present a study on the pyrolysis on a plastic packaging waste stream, DKR-350, which is the fraction of that remains after all the reusable plastics have been removed.¹ The feedstock was pretreated by washing it with water and chemicals, and the effect of the pretreatment in the pyrolysis oil/wax yield and composition was analyzed. Pyrolysis experiments were carried out in a batch reactor at 500 °C. The results indicated that the washing pretreatment did not influence the overall condensable product yield (~68 %, Figure 1), nor the amount of chlorine that remains in the product (~200 ppm). Intensive characterization of the feedstocks and the products help to have a better understanding on the process and the major challenges and limitations of pyrolyzing plastic waste (e.g., oxygen content, impurities).

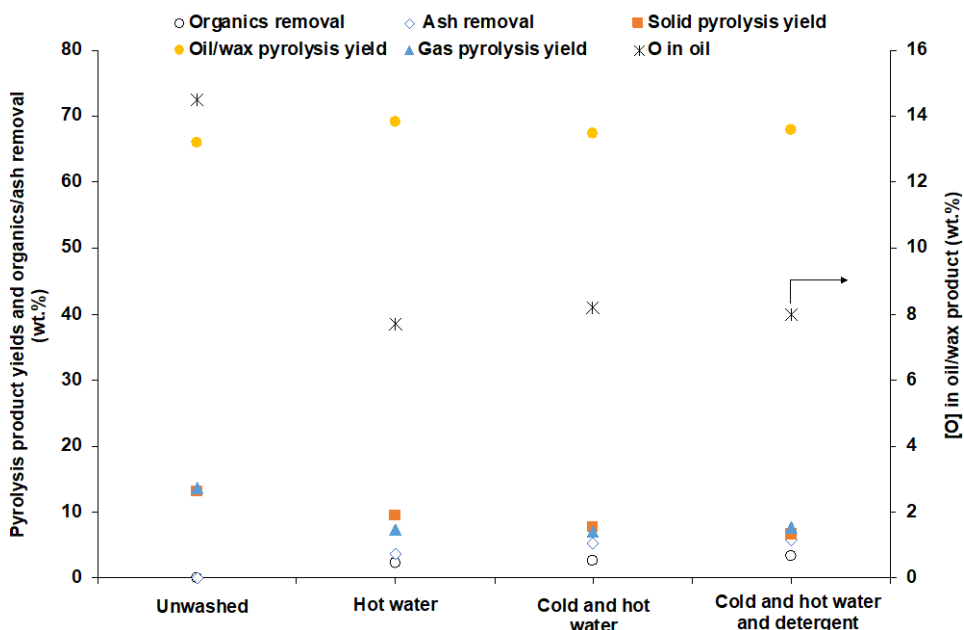


Figure 1 – Pyrolysis product yields (wt. %), and organics and ash removal (wt. %) in the pretreatment step. Adapted from Ref.2.

References

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